

# **Update on SRF Materials Effort at Fermilab – ILC meeting 02/01/06**

**P. Bauer, C. Boffo**

**other participants (at Fnal):**

**M. Battistoni, D. Burk, C. Cooper, L. Elementi, K.  
Ewald, M. Foley, G. Kobliska, E. Hahn, C. Hess, D.  
Hicks, O. Lira, F. McConologue, W. Muranyi, L.  
Peters, R. Rabehl**

**Collaborating universities:**

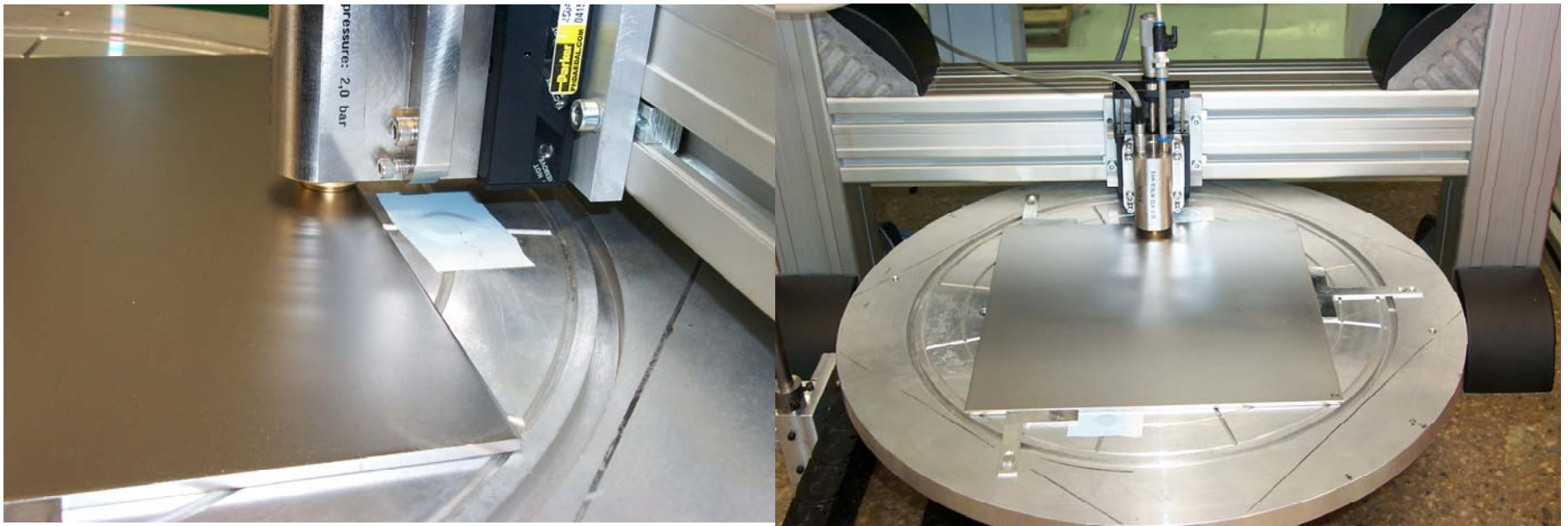
**ASC/University of Wisconsin**

**NUCAPT/Northwestern university**

**NSCL/Michigan State university**

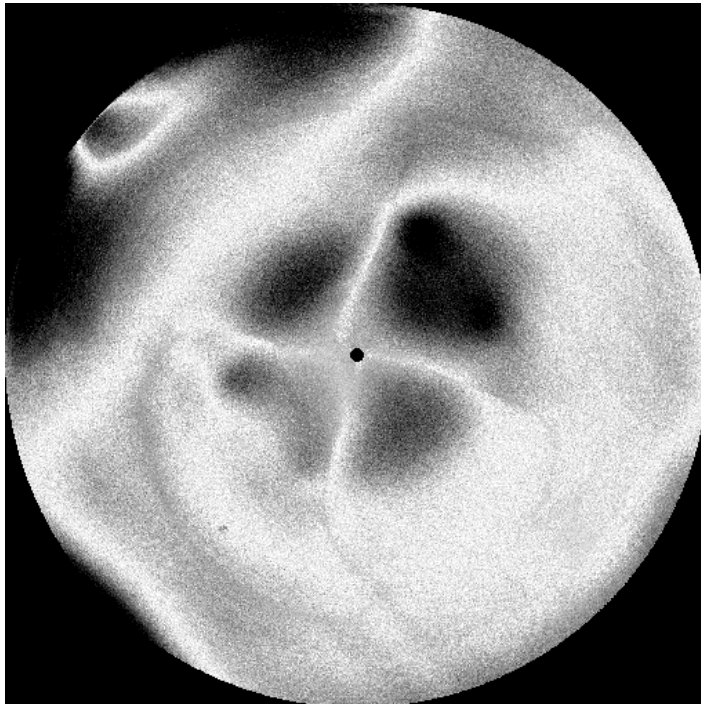
# Eddy Current Scanning

- all remaining 150 discs of ILC-AES batch 1 scanned
- Report due soon
- Meeting with acoustical scanning expert

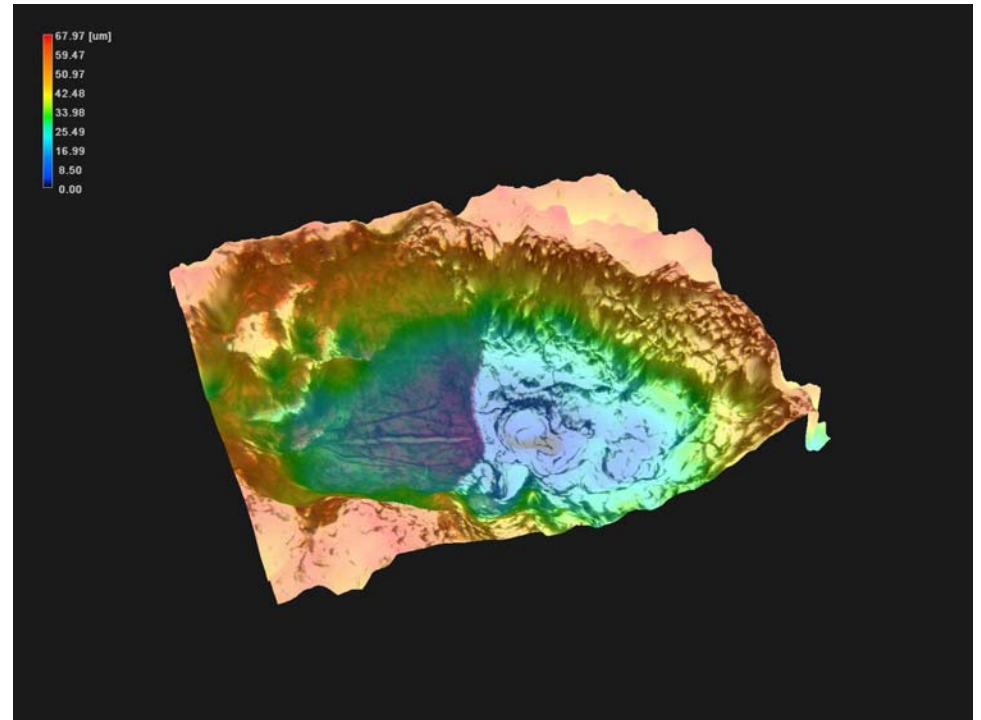


## Preliminary results of AES-ILC sheet 1-250 scans:

- “usual” surface defects: pits, scratches,...
- “strip”
- some UFOs

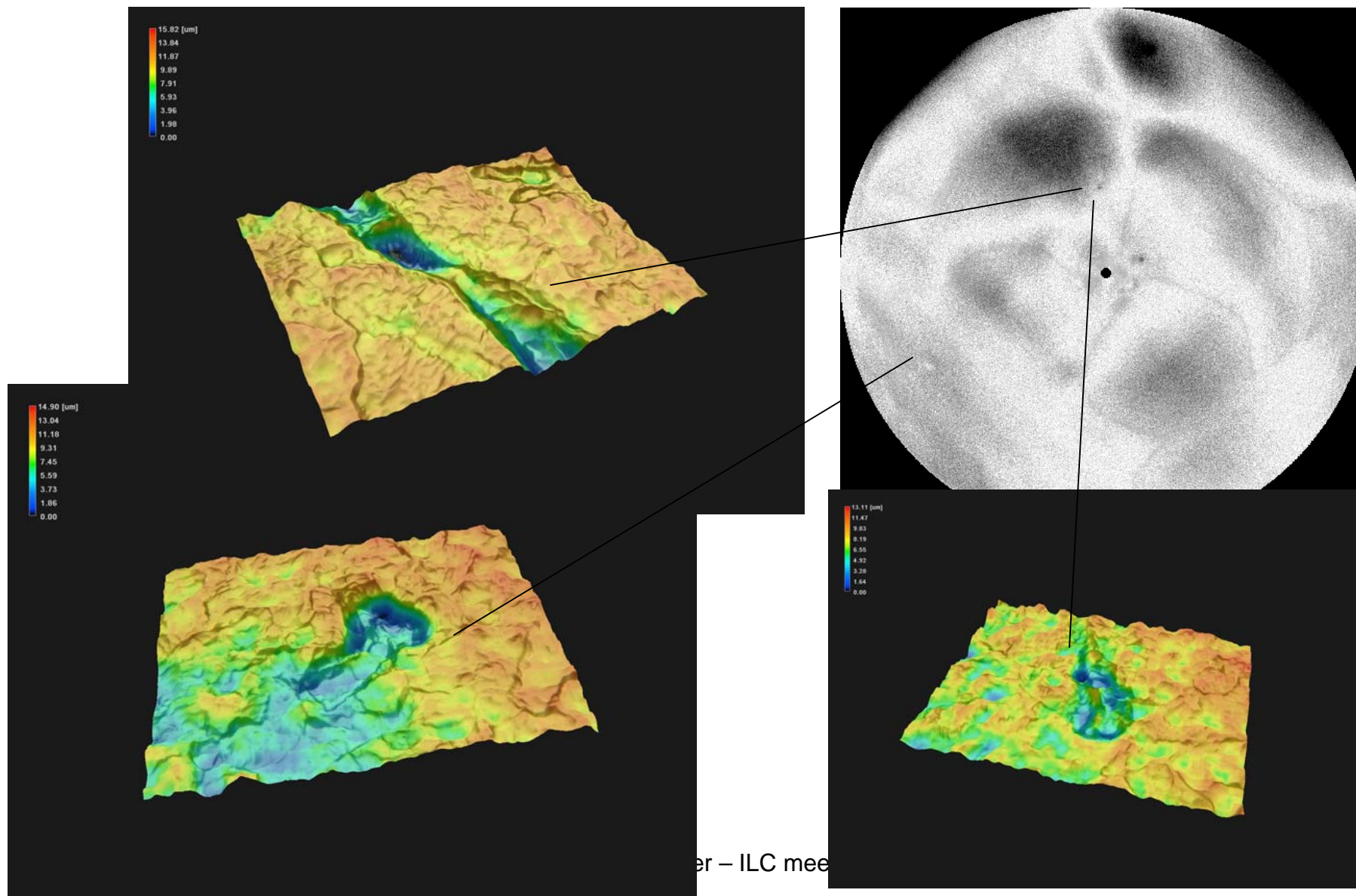


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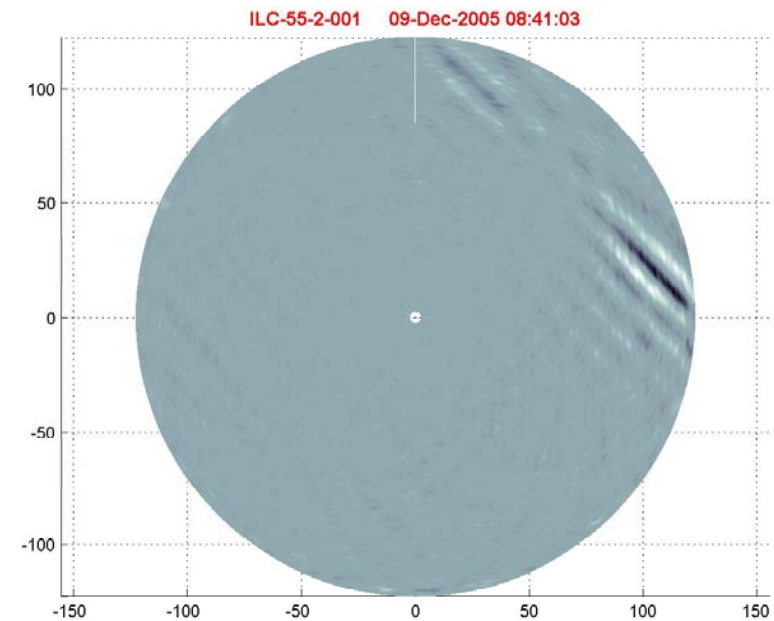
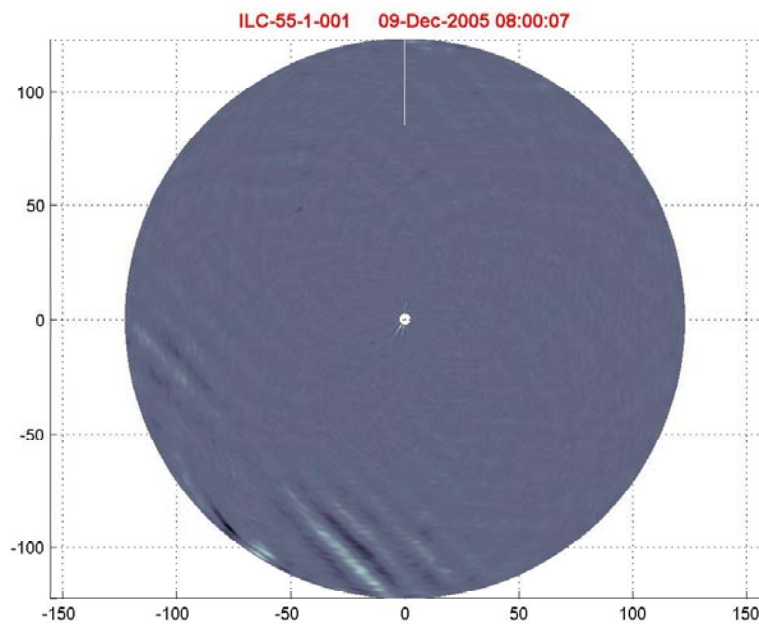
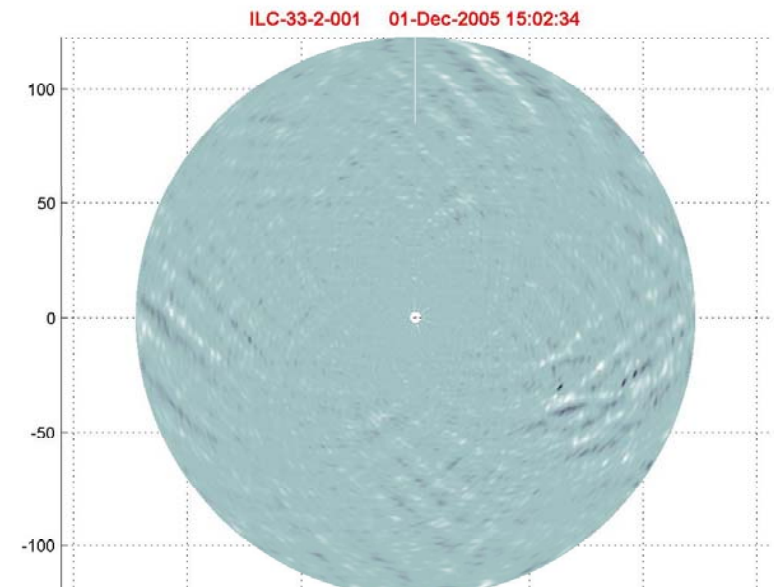
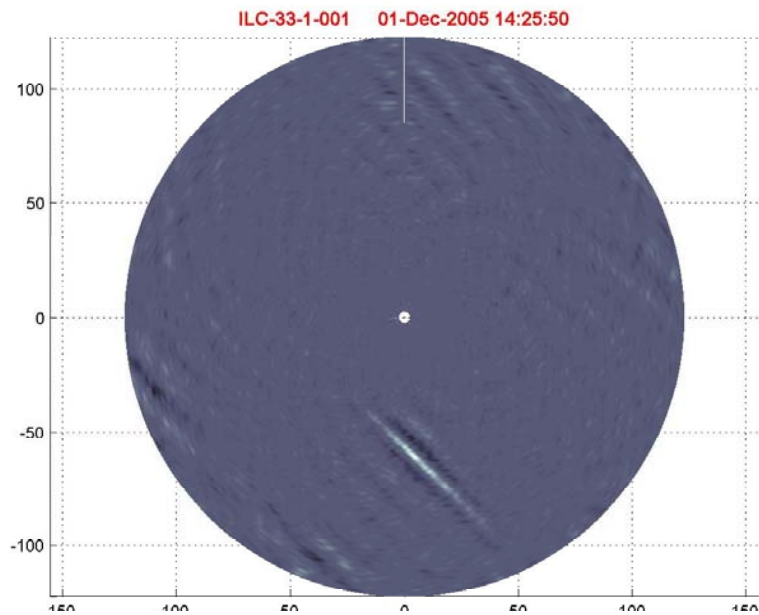
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# UI ECS Signal in ILC-AES 95/2

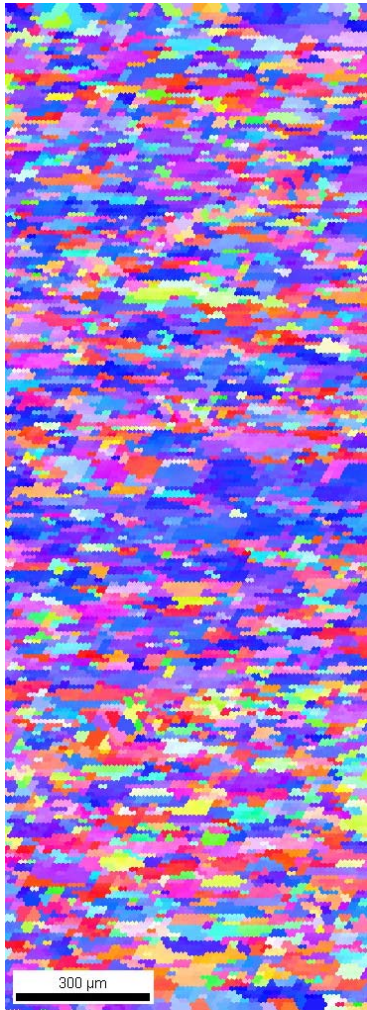




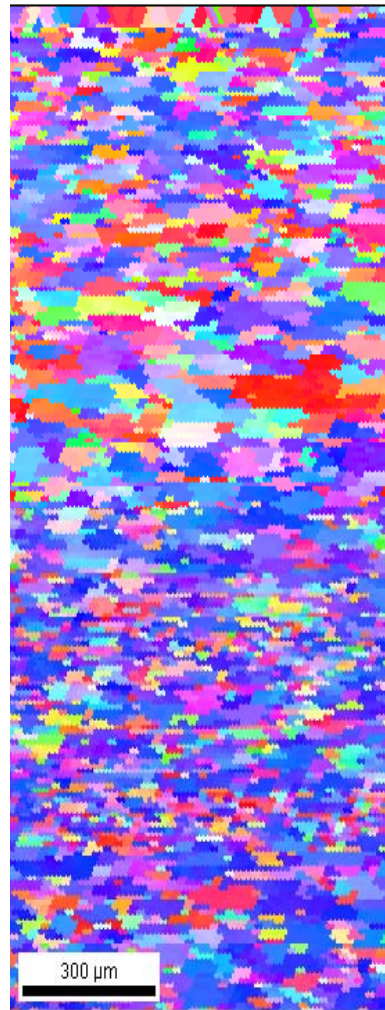
# **“Stripes” in scans – residual rolling marks?**



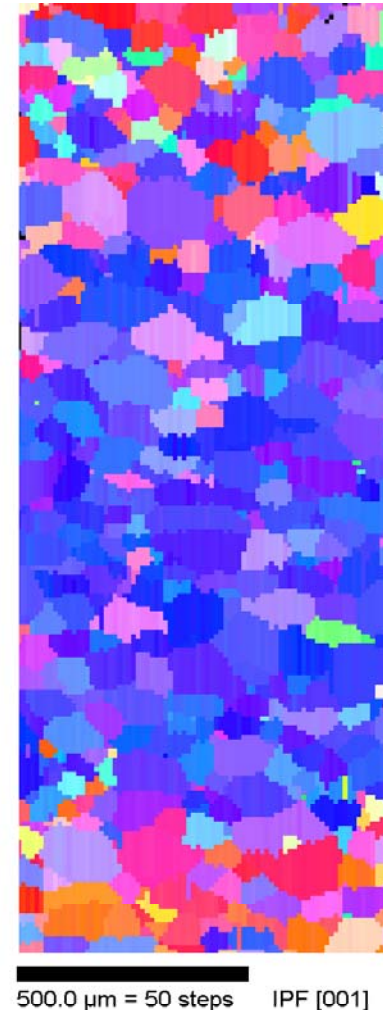
# MSU texture measurements



3 harm



ILC-AES



Tokyo Denkai

grains showing elongated shapes, around 2:1 in Fermi samples. Although  $\{111\}$ //ND texture is dominant in the samples, the intensity of  $\{111\}$  texture in Fermi samples are lower than the intensity of  $\{111\}$  texture in the Tokyo-Denkai (MSU) sample.

## **Material not fully re-crystallized?**

- Non-uniform mechanical properties, possibly causing non-uniform spring-back, non symmetrical half-cells, cracking during deep drawing;
- DESY had similar experience with WC material and sent it back;
- More tests needed to confirm this!
  - Heat treatment test;
  - Stress-strain measurements;
  - Discussion with vendor;

# First trials with US – Univ. Cincinnati

Peter B. Nagy

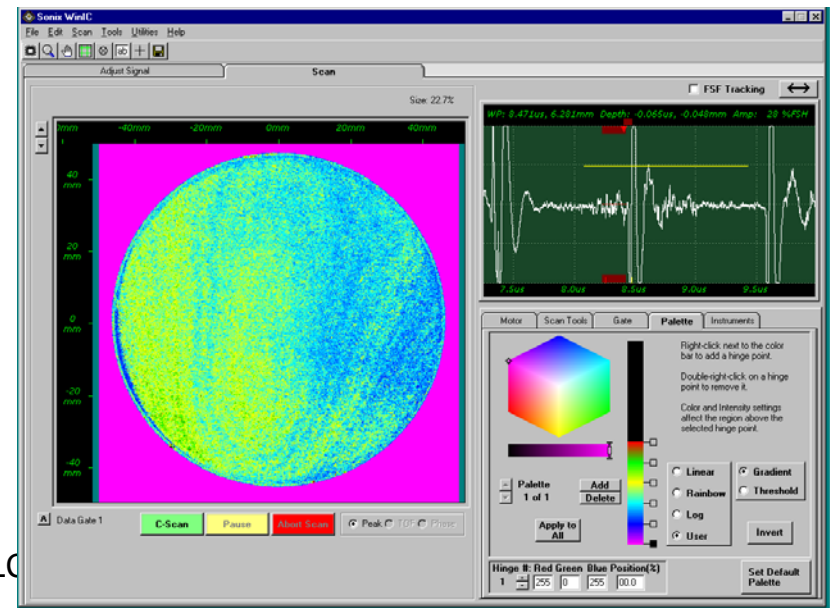
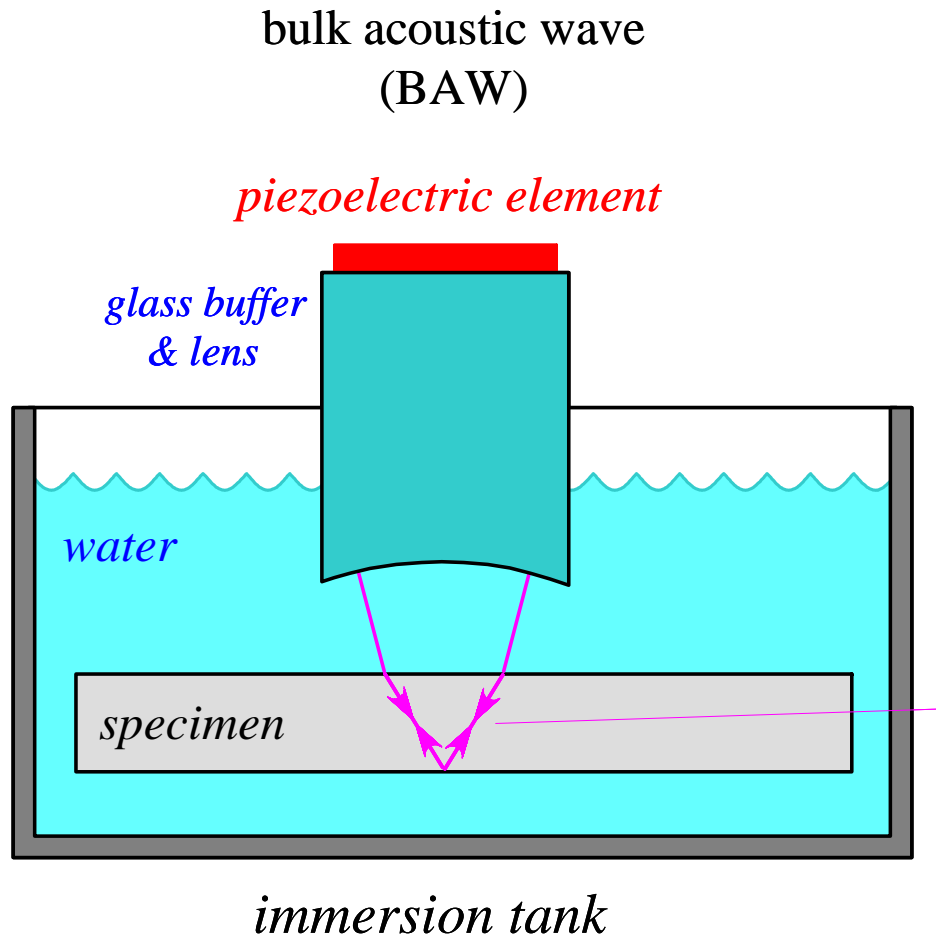
Dept. Aerospace Eng. & Eng. Mechanics

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Cincinnati, Ohio 45221-0070, USA

[peter.nagy@uc.edu](mailto:peter.nagy@uc.edu)

<http://www.ase.uc.edu/people/info/nagy.html>

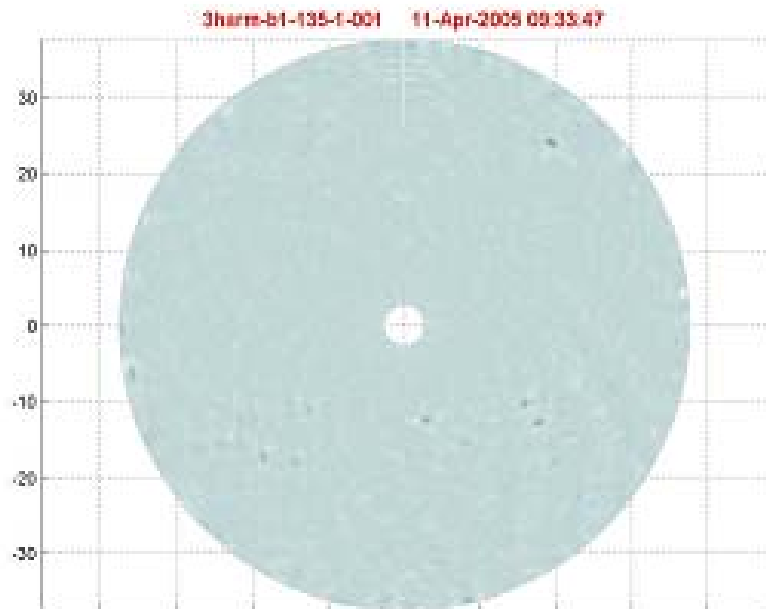


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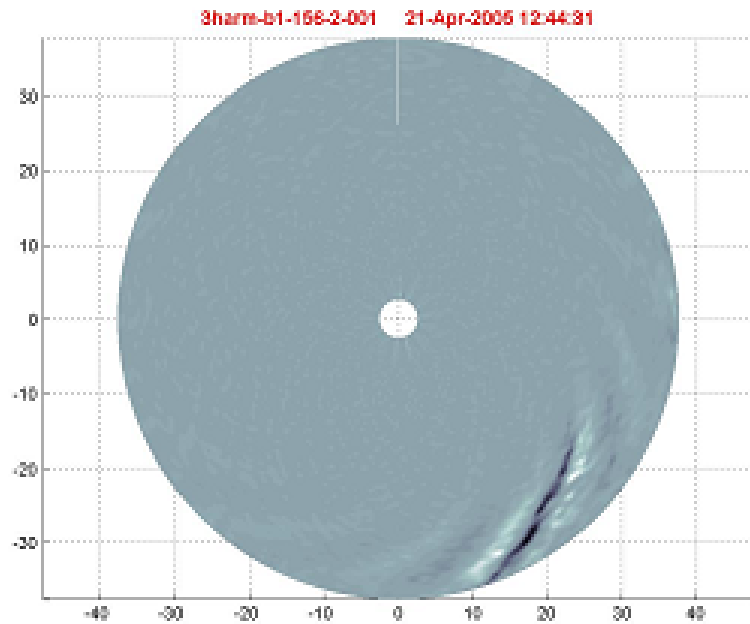
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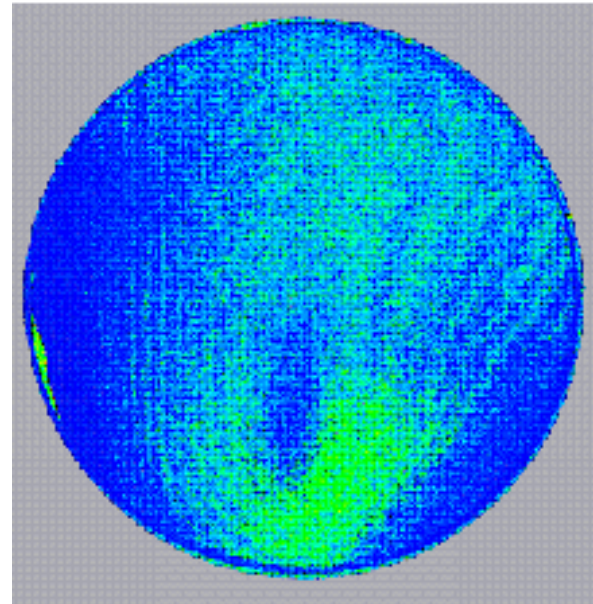


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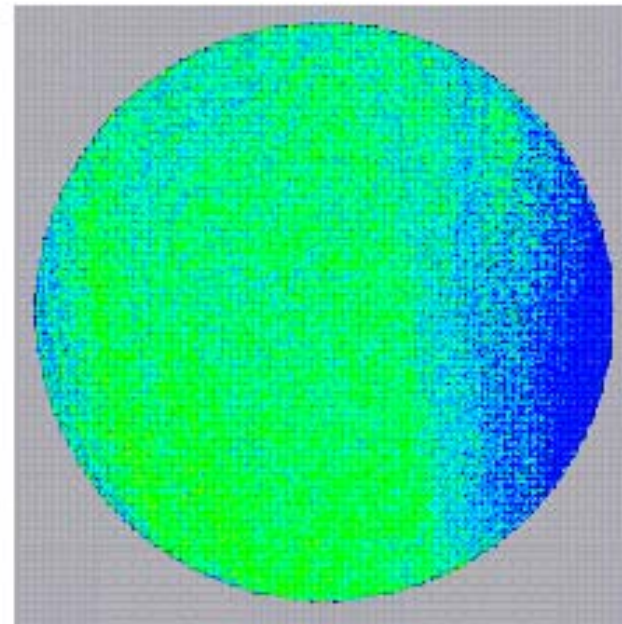


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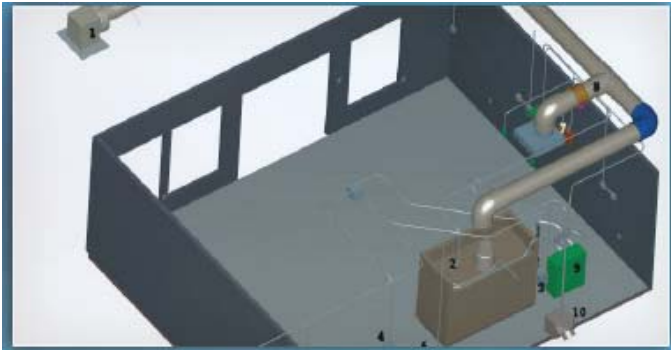
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## 3R Measurement System

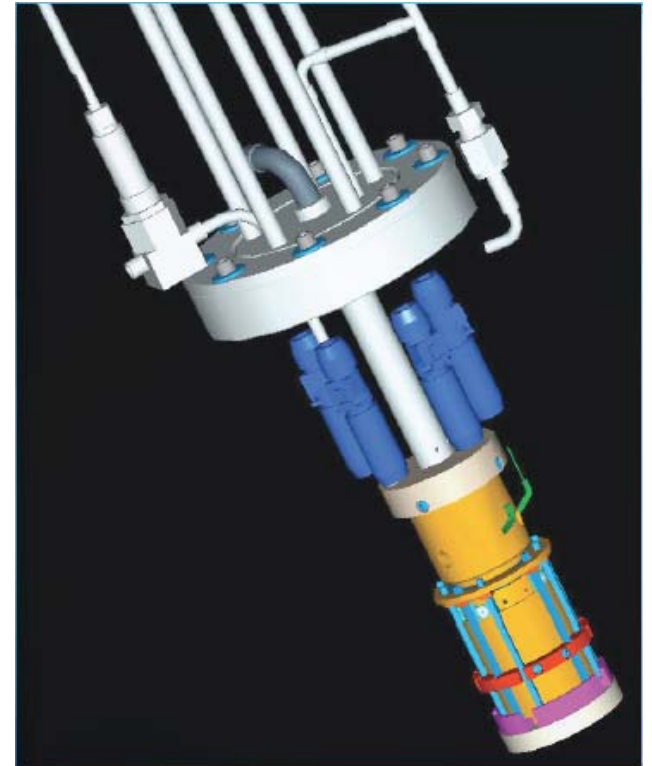
- Design of top plate and insert ready (R. Rabehl)
- Real work, excavations, etc starting next week!



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## Update on University Collaborations

- General:
  - DOE white paper
  - AARD Review Feb 15-16
  - March 17<sup>th</sup> meeting at MSU
- ASC/UW – investigation of SC properties of SRF Nb MO in parallel field
- Northwestern University Nb 3DAP measurements tip development
  - new record results – 4.8 Matoms
- MSU – Kapitza conductance, thermal conductivity
  - ILC-AES material – samples in preparation
- MSU – mechanical properties
  - ILC-AES material – samples in preparation